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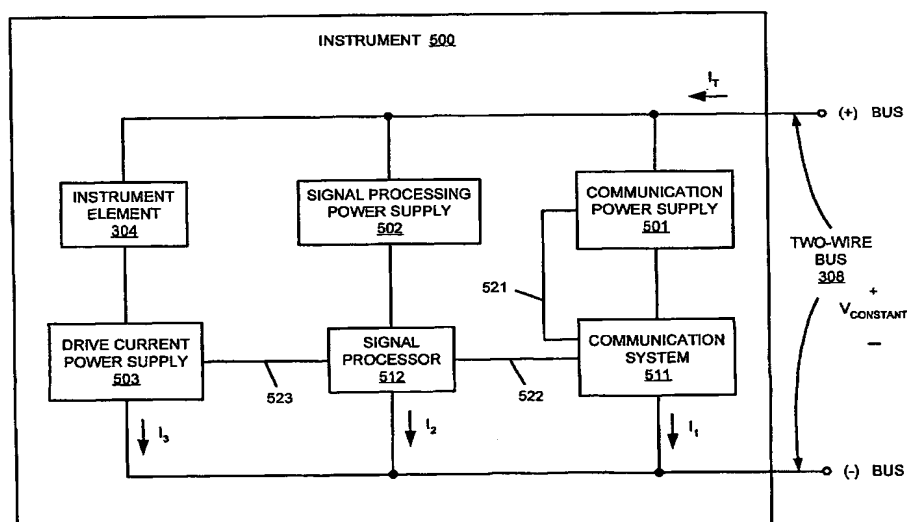
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(54) Title: **TWO-WIRE BUS INSTRUMENT**



(57) Abstract: A two-wire bus instrument (500) adapted for use with a two-wire bus (308) is provided according to an embodiment of the invention. An instrument element (304) receives a third current and generates one or more sensor measurement signals. A signal processor (512) receives a second current and processes the one or more sensor measurement signals to produce a data signal. A communication system (511) receives a first current, receives the data signal, generates a digital communication signal including the data signal, and modulates the digital communication signal onto a two-wire bus (308). A communication power supply (501) connected across the two-wire bus (308) provides the first current to the communication system (511). A signal processing power supply (502) connected across the two-wire bus (308) provides the second current to the signal processor (512). A drive current power supply (503) connected across the two-wire bus (308) provides the third current to the instrument element (304).



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